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# Mineral chemistry and thermometry of chlorites in mineralization zones and metamorphic rocks from Golgohar iron ore deposit (No. 1), Sirjan, Kerman

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**Abstract:** The Golgohar iron mine is located about 55 km southwest of Sirjan in the Sanandaj-Sirjan structural zone. We distinguished five mineralization zones, on the bases of mineral assemblage with magnetite. The gangue minerals are pyrite, pyrrhotite, chalcopyrite, siderite, apatite, serpentine, talc, chlorite, amphibole, calcite, dolomite and quartz. All chlorites are tri-octahedral in nature. The chlorites in MPPC and MTCA are pennine and pennine-clinochlore, respectively. The chlorites in chlorite schists have wider compositional range from pennine, clinochlore, pycnochlorite to ripidolite. Chlorite in mica schists and hornblendite are ripidolite.
The chlorites with the highest amount of Mg have formed from mineralizing fluid. With decreasing of fluid/rock ratio, the chlorites show trends of decreasing Mg and increasing Fe and $Al^{IV}$. Increasing of the Mg/(Mg+Fe) ratios from host rock to mineralization zones are different to those from the iron formaion. The content of minor elements in the structure of chlorite depends on the fluid composition, other crystallized minerals from the fluid, water/rock ratio and the composition of host rocks. The chlorite formation temperatures are ranging between 245°C and 415°C. MPPC zone have the lowest temperature (avg = 301°C), so Mg-rich chlorites are formed at lower temperature rather than Fe-rich Chlorites.

**Keywords:** *chlorite; mineral chemistry; thermometry; mineralization; iron; Golgohar; Sanandaj-Sirjan.*



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